# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT7226927

SUBMISSION TYPE:	RESUBMISSION
NATURE OF CONVEYANCE:	ASSIGNMENT
RESUBMIT DOCUMENT ID:	507059881

#### **CONVEYING PARTY DATA**

Name	Execution Date
TAKUNORI TAIRA	12/27/2021
ARVYDAS KAUSAS	12/23/2021
LIHE ZHENG	12/25/2021

#### **RECEIVING PARTY DATA**

Name:	INTER-UNIVERSITY RESEARCH INSTITUTE CORPORATION NATIONAL INSTITUTES OF NATURAL SCIENCES
Street Address:	2-21-1, OSAWA
City:	MITAKA-SHI, TOKYO
State/Country:	JAPAN
Postal Code:	181-8588

## **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	17619323

## **CORRESPONDENCE DATA**

**Fax Number:** (202)204-0289

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

**Phone:** 202-842-8800

**Email:** dcpatentfiling@faegredrinker.com

Correspondent Name: FAEGRE DRINKER BIDDLE & REATH LLP

Address Line 1: 1500 K STREET, N.W.

Address Line 2: SUITE 1100

Address Line 4: WASHINGTON, D.C. 20005-1209

ATTORNEY DOCKET NUMBER:	520565-0005-00-US-000006
NAME OF SUBMITTER:	PETER J. SISTARE
SIGNATURE:	/Peter J. Sistare/
DATE SIGNED:	03/16/2022

**Total Attachments: 2** 

source=520565\_0005\_assignment#page1.tif

PATENT REEL: 059368 FRAME: 0226

507180081

 $source = 520565\_0005\_assignment \# page 2.tif$ 

PATENT REEL: 059368 FRAME: 0227

	ASSIG	NMENT	<b>y</b>	•
Whereas, I/we,				
<u>Name</u>		<u>idress</u>		
l) Takunori TAIRA		ES OF NATURAL SCIEN lyodaiji-cho,	ERSITY RESEARCH INSTITUTE C CES,	CORPORATION
2) Arvydas KAUSAS		ES OF NATURAL SCIEN Iyodaiji-cho,	ERSITY RESEARCH INSTITUTE C CES.	ORPORATION .
3) Lihe ZHENG		ES OF NATURAL SCIEN lyodaiji-cho.	RSITY RESEARCH INSTITUTE ( CES,	CORPORATION
hereinafter called assignor(s), l METHOD FOR MANUFAC			CAL ELEMENT	
•				
and executed an application for otherwise indicated below:	Letters Patent of the United	States of America t		ith unless
filed on	December 15, 2021	, Serial No.	17/619323	; and
Whereas	,	******		
NATURAL SCIENC		E CORPORATION I	NATIONAL INSTITUTES	OF
2-21-1,				* * * * * *
assignee), desires to acquire the		est in the application	and invention, and to any t	Juited States
patents to be obtained therefor	e it known that, for good and	Landon Blanck and Change		er end endelse in
hereby acknowledged, I/WE, a transfer, and set over unto the this invention and this applicat which may be granted thereon, Patents and Trademarks of the assigns, in accordance with the	assignee, its lawful successor ion, and all divisions, and co and all reissues thereof, and United States to issue all Le	s and assigns, MY/O ntinuations thereof, a I/WE hereby author	UR entire right, title, and in and all Letters Patent of the ize and request the Commis	nterest in and to United States ssioner of
AND, I/WE HEREBY assignee, its successors and ass	further covenant and agree things, any facts known to Mi	/US respecting this	invention and testify in any	legal
proceeding, sign all lawful pap desirable to perfect the title to continuation, and reissue applie successors and assigns, to obta	this invention in said assignerations, make all rightful out	e, its successors and his and generally do	assigns, execute all divisio	nal, ssignee, its
understood that any expense in assigns.				
-		record in the patent	application to fill in the fili	
	INVENTORS		DATE SIGNE	ED.
1): John	w Jav		2021/10	
Name:			f 1 %	
,	Takunori TAIRA		<i>f</i> 1 600	
2):	- Laws		2021/12	
2):	Takunori TAIRA  *** Cluston  Arvydas KAUSAS		2021/12/	

(Legalization not required for recording but is prima facile evidence of execution under 35 U.S.C. § 261)

Page 1 of 1

US Rights Only

## ASSIGNMENT

Whereas, I/we, Name					
		Δ.	ddress		
1XGHIC				7 (12 W 7 2 - 12 1 W 7 W 1 1 C 7 2 1 1 X 7 W 7 W 7 W 7 W 7 W 7 W 7 W 7 W 7 W 7	ODBOD LEION
) Takunori TA	IRA		TES OF NATURAL SCIENC dyodaiji-cbo,	RSITY RESEARCH INSTITUTE C ES.	ORPORATION
) Arvydas KAU	ISAS		TES OF NATURAL SCIENC Ayodniji-cho,	RSITY RESEARCH INSTITUTE C CES.	ORPORATION
) Lihe ZHENG			TES OF NATURAL SCIENC 1yodaiji-cho.	RSITY RESEARCH INSUTUTE C PES,	ORPORATION
reinafter called a	ssignor(s). hav	e invented certain improv	rements in		
		IRING OPTICAL ELE		AL ELEMENT	
nd executed an ap	•	etters Patent of the United	l States of America the	erefor on even date herewi	h unless
		ecember 15, 2021	, Scrial No.	17/619323	; and
Whereas	CU OII	Centre 10, none		-	, 6316
	UNIVERSITY	RESEARCH INSTITUTE	E CORPORATION N	ATIONAL INSTITUTES	OF
	AL SCIENCE		S SOIL OIGHTEOTH II	* * * * * * * * * * * * * * * * * * *	
E 1 E 30 10 100 4 10	2-21-1, Os				
ssignee), desires			est in the application a	md invention, and to any U	nited States
tents to be obtain		•	-	•	
ereby acknowledg ansier, and set ov	ed, I/WE, as a er unto the ass	ssignor(s), have sold, assi ignee, its lawful successo	gned, transferred, and rs and assigns, MY/OU	n from assignee, the receip set over, and do hereby se JR entire right, title, and in	II, assign, terest in and t
hich may be gran itents and Traden	ited thereon, ar narks of the U	nited States to issue all Le	l I/WE hereby authoriz	d all Letters Patent of the ze and request the Commis- vention to assignee, its succ	sioner of
hich may be gran atents and Traden ssigns, in accorda	ited thereon, ar narks of the United with the to	id all reissues thereof; and nited States to issue all Lo rms of this Assignment;	I I/WE hereby authorize tters Patent for this in	ze and request the Commis- vention to assignee, its succ	sioner of cessors and
hich may be gran atents and Traden esigns, in accorda AND, I/W	ited thereon, ar narks of the Unice with the to E HEREBY fu	id all reissues thereof; and nited States to issue all Lo rms of this Assignment; rther covenant and agree t	I I/WE hereby authorize ters Patent for this in that I/WE will, without	ze and request the Commiss vention to assignee, its succ further consideration, com-	sioner of cessors and municate with
thich may be gran atents and Traden ssigns, in accorda AND, I/W ssignee, its succes	ated thereon, and arks of the United with the to E HEREBY fursors and assign	and all reissues thereof; and all reissues thereof; and ited States to issue all Learns of this Assignment; other covenant and agree the any facts known to MI.	I I/WE hereby authorize tters Patent for this in that I/WE will, without E/OS respecting this in	ze and request the Commiss vention to assignee, its succ further consideration, com- evention and testify in any	sioner of cessors and municate with legal
hich may be gran atents and Traden ssigns, in accorda AND, I/W ssignee, its succes roceeding, sign al	ated thereon, and the Unarks of the Unarks of the Unarks the LEREBY fursors and assignational lawful papers	and all reissues thereof; and all reissues thereof; and all Lorens of this Assignment; and agree the covenant and agree the any facts known to MI when called upon to do s	I I/WE hereby authorize ters Patent for this in that I/WE will, without E-/US respecting this in the patents of the patents of the patents of execute and deliver	ze and request the Commiss vention to assignee, its succ further consideration, com-	sioner of cessors and municate with legal cessary or
Thich may be gran atents and Traden ssigns, in accordant AND, I/W ssignee, its succes roceeding, sign all esirable to perfect continuation, and re-	ated thereon, and arks of the United with the to the HEREBY full sors and assignable lawful papers the title to the eissue applicat	and all reissues thereof; and all reissues thereof; and ited States to issue all Lorms of this Assignment; other covenant and agree this, any facts known to MI when called upon to do so invention in said assignment, make all rightful oat	I I/WE hereby authorize ters Patent for this in that I/WE will, without E/US respecting this in the patent of the	te and request the Commission to assignee, its succepture further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as	sioner of cessors and municate with legal cessary or lal, signee, its
which may be grant atents and Traden ssigns, in accordance, in successing the signed at the succession of the signed at the sign	ated thereon, and arks of the United with the to the HEREBY full sors and assignable lawful papers the title to the eissue applications, to obtain	and all reissues thereof; and all reissues thereof; and the States to issue all Learns of this Assignment; and agree the there covenant and agree the s, any facts known to MI when called upon to do s invention in said assigneous, make all rightful oat and enforce proper patent.	that I/WE hereby authorize there Patent for this in that I/WE will, without F/OS respecting this in the properties of the successors and a successors and a successors and generally do exprotection for this invitation.	ee and request the Commission to assignee, its sucception to assignee, its sucception and testify in any all papers that may be necessigns, execute all division	sioner of cessors and municate with legal cessary or nal, signee, its , it being
which may be granteents and Tradents signs, in accordants in accordants and Tradents signs, in accordants are accessors and assigned accessors and assigned and accessors and assigns.  In the even secuted, I/WE here	ated thereon, and arks of the United with the to the EHEREBY fursions and assignate the title to the eissue applications, to obtain a expense incide that the patent eby grant permitted.	and all reissues thereof; and all reissues thereof; and the States to issue all Lerms of this Assignment; and agree the state of the Assignment and agree the state of the sta	that I/WE hereby authorize there Patent for this in that I/WE will, without E/OS respecting this in the thick of the thick	te and request the Commission to assignce, its succepture further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as tention in the United States, the by the assignce, its succepture and the time this Assignation to fill in the film	sioner of cessors and municate with legal essary or nal, signee, its it being essors and
hich may be grantents and Tradensigns, in accordansigns, in accordansigns, it is successoreding, sign all estrable to perfect antinuation, and rescuessors and assigned that any signs.  In the even accuted, I/WE here	ated thereon, and arks of the United with the to the EHEREBY fursions and assignate the title to the eissue applications, to obtain a expense incide that the patent eby grant permitted.	and all reissues thereof; and all reissues thereof; and the States to issue all Larms of this Assignment; and agree the state of the st	that I/WE hereby authorize there Patent for this in that I/WE will, without E/OS respecting this in the thick of the thick	the and request the Commission to assignce, its succepture of further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as ention in the United States, the by the assignee, its succepture of the time this Assignation to fill in the filing ed.	sioner of cessors and municate with legal ressary or hal, signee, its it being ressors and himent is g date and/or
AND, I/W signes, in accorda  AND, I/W signee, its successoceeding, sign al' sirable to perfect ntinuation, and recessors and assi derstood that any signs.  In the even ecuted, I/WE here	ated thereon, and arks of the United with the to the EHEREBY fursions and assignate the title to the eissue applications, to obtain a expense incide that the patent eby grant permitted.	and all reissues thereof; and all reissues thereof; and the States to issue all Lerms of this Assignment; and facts known to MI when called upon to do s invention in said assigneous, make all rightful oat and enforce proper patent to the execution of su application filing date or assign to the attorneys of	that I/WE hereby authorize there Patent for this in that I/WE will, without E/OS respecting this in the thick of the thick	te and request the Commission to assignce, its succepture further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as tention in the United States, the by the assignce, its succepture and the time this Assignation to fill in the film	sioner of cessors and municate with legal ressary or hal, signee, its it being ressors and himent is g date and/or
hich may be grantents and Tradensigns, in accordance, its successoceeding, sign all sirable to perfect antinuation, and recessors and assigners of that any signs.  In the even ecuted, I/WE her rial number above	ated thereon, and arks of the United with the to the EHEREBY fursions and assignate the title to the eissue applications, to obtain a expense incide that the patent eby grant permitted.	and all reissues thereof; and all reissues thereof; and the States to issue all Larms of this Assignment; and agree the state of the st	that I/WE hereby authorize there Patent for this in that I/WE will, without E/OS respecting this in the thick of the thick	the and request the Commission to assignce, its succepture of further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as ention in the United States, the by the assignee, its succepture of the time this Assignation to fill in the filing ed.	sioner of cessors and municate with legal ressary or hal, signee, its it being ressors and himent is g date and/or
aich may be grantents and Tradensigns, in accordance, its successoceeding, sign all sirable to perfect intimation, and recessors and assiderstood that any signs.  In the even ecuted, I/WE her rial number above	ated thereon, and arks of the United with the to the EHEREBY fursions and assignate the title to the eissue applications, to obtain a expense incide that the patent eby grant permitted.	and all reissues thereof; and all reissues thereof; and the States to issue all Larms of this Assignment; and agree the state of the st	that I/WE hereby authorize there Patent for this in that I/WE will, without E/OS respecting this in the thick of the thick	the and request the Commission to assignce, its succepture of further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as ention in the United States, the by the assignee, its succepture of the time this Assignation to fill in the filing ed.	sioner of cessors and municate with legal ressary or hal, signee, its it being ressors and himent is g date and/or
hich may be grantents and Tradensigns, in accordance its successoreeding, sign all estrable to perfect outlineation, and recessors and assignes.  In the even recuted, I/WE her rial number above	ated thereon, and arks of the United with the to the EHEREBY fursions and assignate the title to the eissue applications, to obtain a expense incide that the patent eby grant permitted.	and all reissues thereof; and the States to issue all Lorms of this Assignment; of the covenant and agree the states, any facts known to MI when called upon to do so invention in said assigneous, make all rightful oat and enforce proper patent tent to the execution of suit application filing date or inssion to the attorneys of this Assignment after suit.	that I/WE hereby authorize there Patent for this in that I/WE will, without E/OS respecting this in the thick of the thick	the and request the Commission to assignce, its succepture of further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as ention in the United States, the by the assignee, its succepture of the time this Assignation to fill in the filing ed.	sioner of cessors and municate with legal ressary or hal, signee, its it being ressors and himent is g date and/or
hich may be gran atents and Traden signs, in accordary atents and Traden signs, in accordary at a signe, its successorceeding, sign all assirable to perfect antinuation, and reaccessors and assinderstood that any signs.  In the even accuted, I/WE her arial number above the accuted and the accuted are above as a signe and a signe accuted. I/WE her arial number above accuted are a signe accuted and accuted are a signe accuted as a signe accuted	ated thereon, and arks of the United with the to the HEREBY fursors and assign I lawful papers the title to the eissue applicate gas, to obtain a expense incident that the patent eby grant perme, and to recommend to the eissue applicate that the patent eby grant perme, and to recommend to the eissue applicate that the patent eby grant perme, and to recommend the eigenvalue of eigenvalue of the eigenvalue of the eigenvalue of the eigenvalue	and all reissues thereof; and the States to issue all Lorms of this Assignment; of the Covenant and agree the states, any facts known to MI when called upon to do so invention in said assigneous, make all rightful oat and enforce proper patent and enforce proper patent to the execution of such application filing date or dission to the attorneys of this Assignment after such assignment after such assignment after such assignment after such as a such asu	that I/WE hereby authorize there Patent for this in that I/WE will, without E/OS respecting this in the thick of the thick	the and request the Commission to assignce, its succepture of further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as ention in the United States, the by the assignee, its succepture of the time this Assignation to fill in the filing ed.	sioner of cessors and municate with legal ressary or hal, signee, its it being ressors and himent is g date and/or
thich may be granatents and Tradenssigns, in accordansigns, in accordansignee, its successful to perfect the perfect on tinuation, and recessors and assigneed that any signs.  In the even secuted, I/WE here	ated thereon, and arks of the United with the to the HEREBY fursors and assign I lawful papers the title to the eissue applicate gas, to obtain a expense incident that the patent eby grant perme, and to recommend to the eissue applicate that the patent eby grant perme, and to recommend to the eissue applicate that the patent eby grant perme, and to recommend the eigenvalue of eigenvalue of the eigenvalue of the eigenvalue of the eigenvalue	and all reissues thereof; and the States to issue all Lorms of this Assignment; of the covenant and agree the states, any facts known to MI when called upon to do so invention in said assigneous, make all rightful oat and enforce proper patent tent to the execution of suit application filing date or inssion to the attorneys of this Assignment after suit.	that I/WE hereby authorize there Patent for this in that I/WE will, without E/OS respecting this in the thick of the thick	the and request the Commission to assignce, its succepture of further consideration, commission and testify in any all papers that may be necessigns, execute all division verything possible to aid as ention in the United States, the by the assignee, its succepture of the time this Assignation to fill in the filing ed.	sioner of cessors and municate with legal ressary or legal, signee, its it being ressors and ment is g date and/or

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. § 261)

Page 1 of 1

Lihe ZHENG

PATENT REEL: 059368 FRAME: 0229

RECORDED: 01/06/2022

Name: